

SELF SERVICE ANALYTICS – EXAMPLES, CAPABILITIES, CHALLENGES

GERHARD SVOLBA, SAS AUSTRIA
WIEN, 16. SEPTEMBER 2016



INTRODUCTION | LOOKING BACK IN HISTORY



- Tremendous power of Egyptian high priests: They knew how to calculate!
- → “Predict” the Nile’s annual flooding.
- Ordinary people had not idea how this could be achieved: *High Priests must have had supernatural powers.*



INTRODUCTION | RELATION TO SELF-SERVICE ANALYTICS

- High priests had no interest in sharing the source of their knowledge
- Would have reduced their power significantly
- *High Priests in the Ancient Egypt would have hated Self-Service Analytics and would have forbidden SAS® Visual Analytics.*

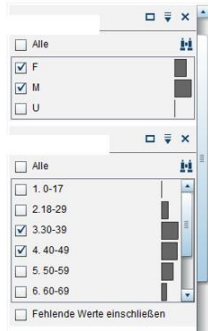


- Enable business and domain experts
 - To access data and
 - Use descriptive and advanced analytical methods
- „Democratization of Analytics“
- Points to Consider:
 - Intuitive Tools
 - Accessing Big Data, Accessing Multistructured Data
 - Culture: Feedback Culture and Analytics Culture
 - Be prepared for misunderstandings, wrong application of analytical methods



- **Life Insurance**
 - medical doctors evaluate scoring systems
 - provide access to data, search for relationships in the data
 - rate applicants and price policies in a more granular way

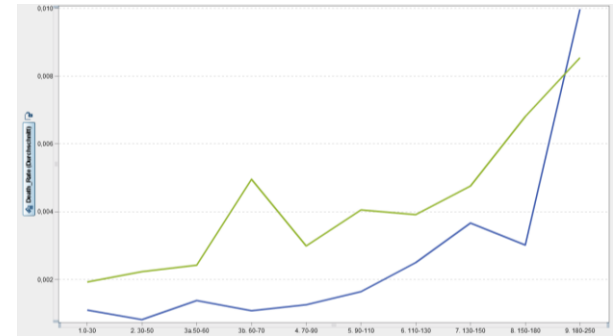
Filter



Group/Re-Group



Display

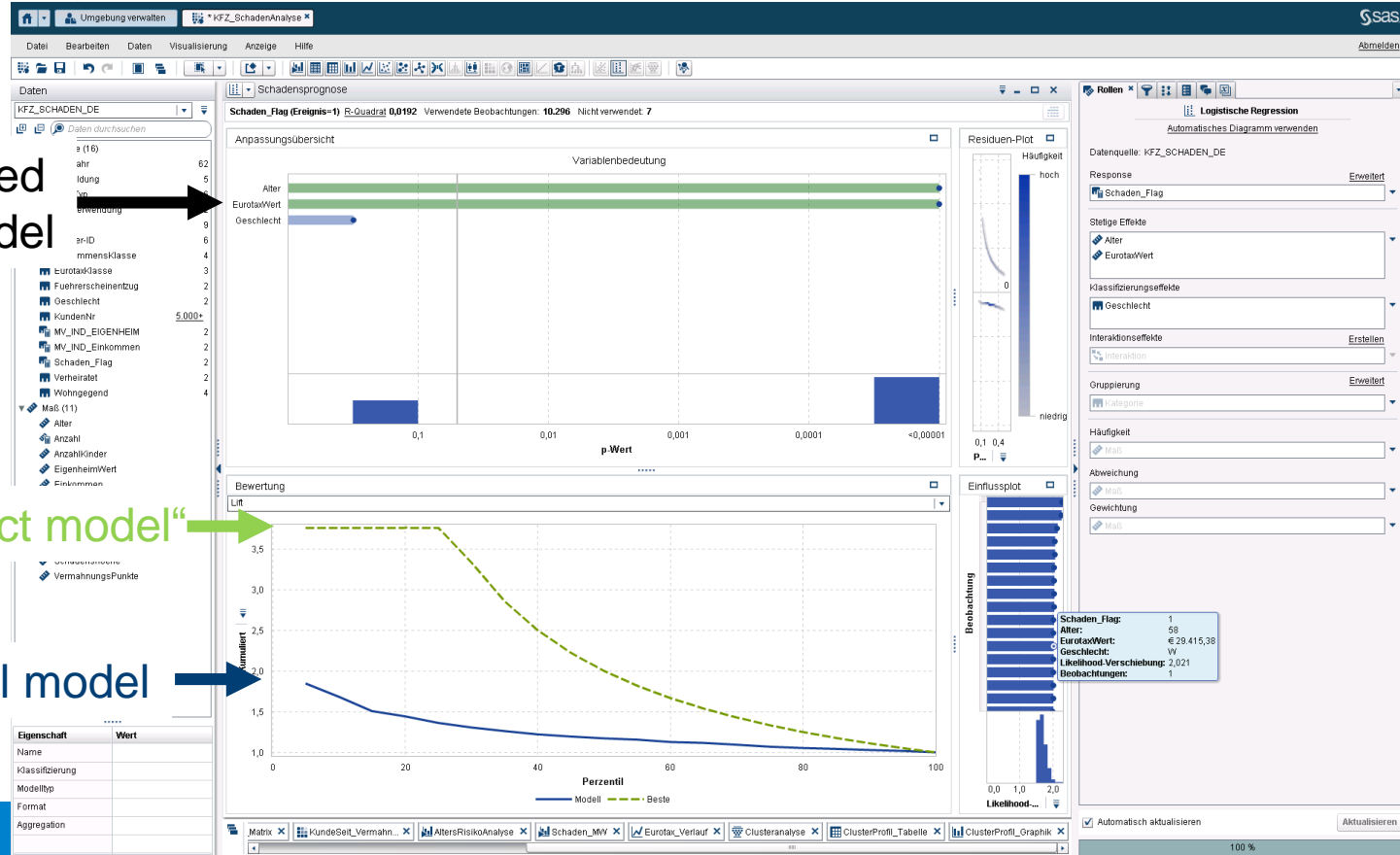


- **Predictive maintenance for industrial equipment**
 - predict the remaining lifetime of pipes, drilling devices, engines.
 - much cheaper to replace devices before they break
 - engineers can analyze the data from a technical point of view,
 - identify correlations between technical parameters and suggest models that predict failures

PREDICTIVE MAINTENANCE

FIRST SIMPLE MODEL

3 Variables offered
2 used in the model



Quality of the „perfect model“

Quality of the actual model

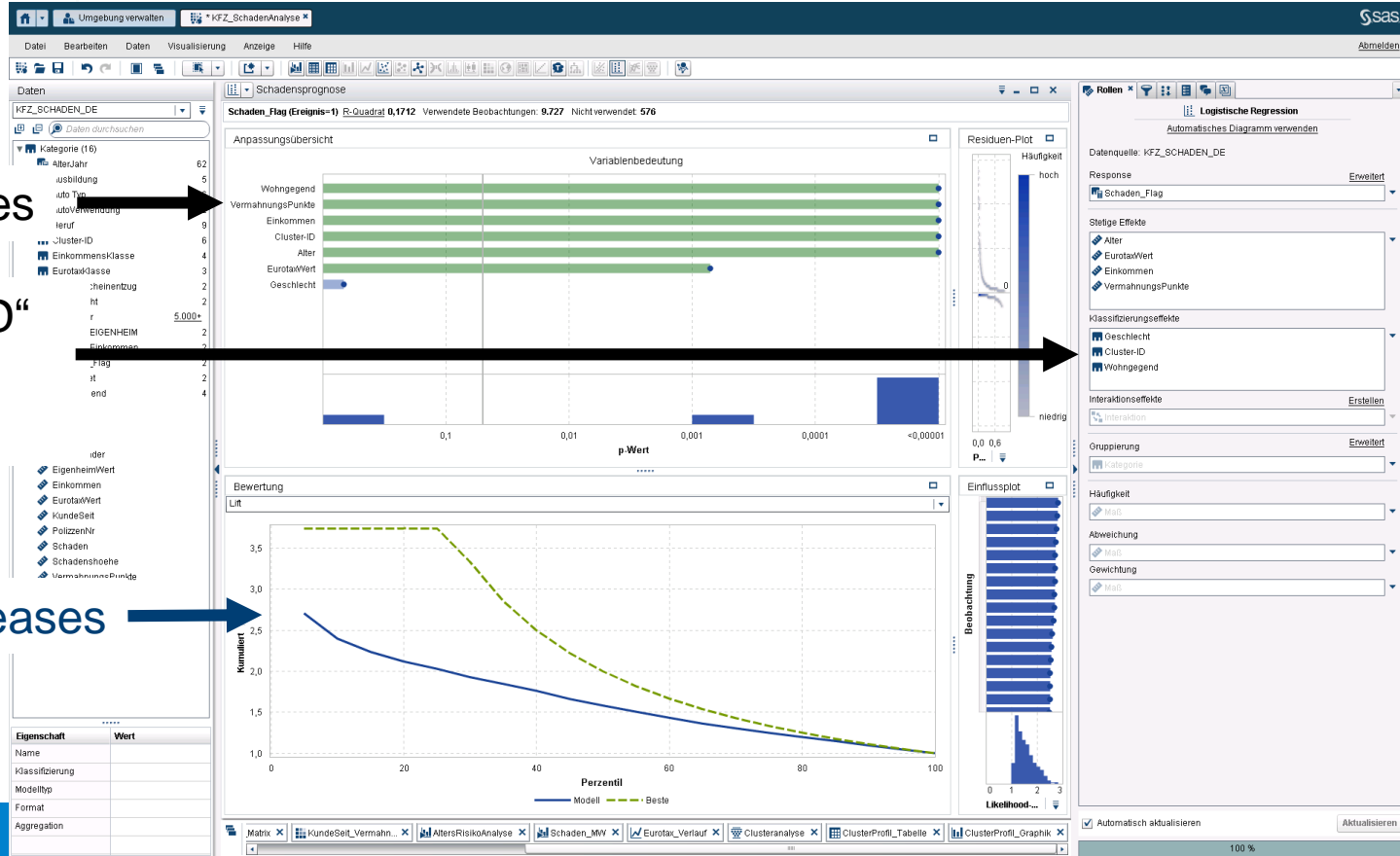
PREDICTIVE MAINTENANCE

EXTENSION OF THE MODEL

4 additional variables

Variable „ClusterID“
from previous
cluster analysis

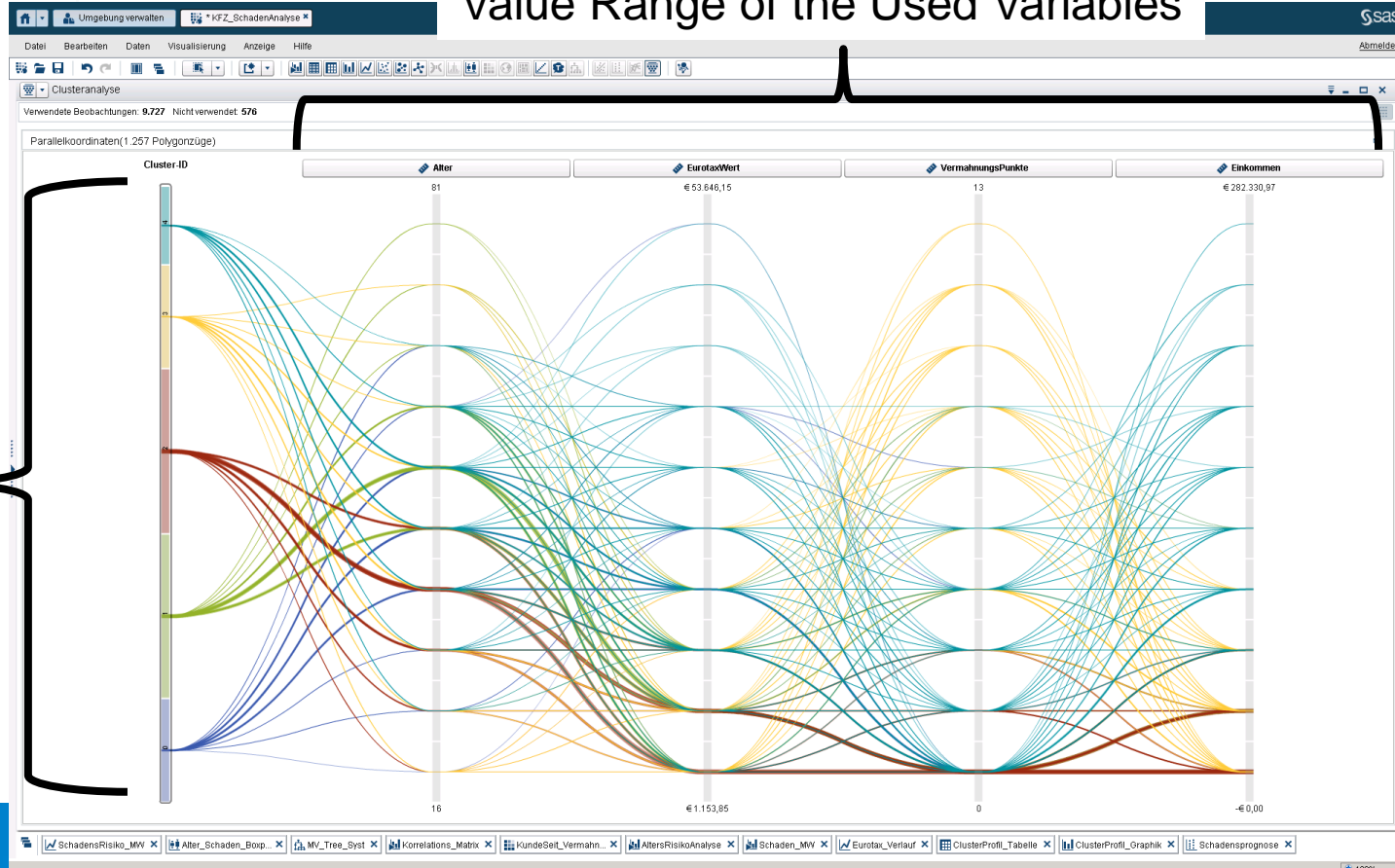
Model quality increases



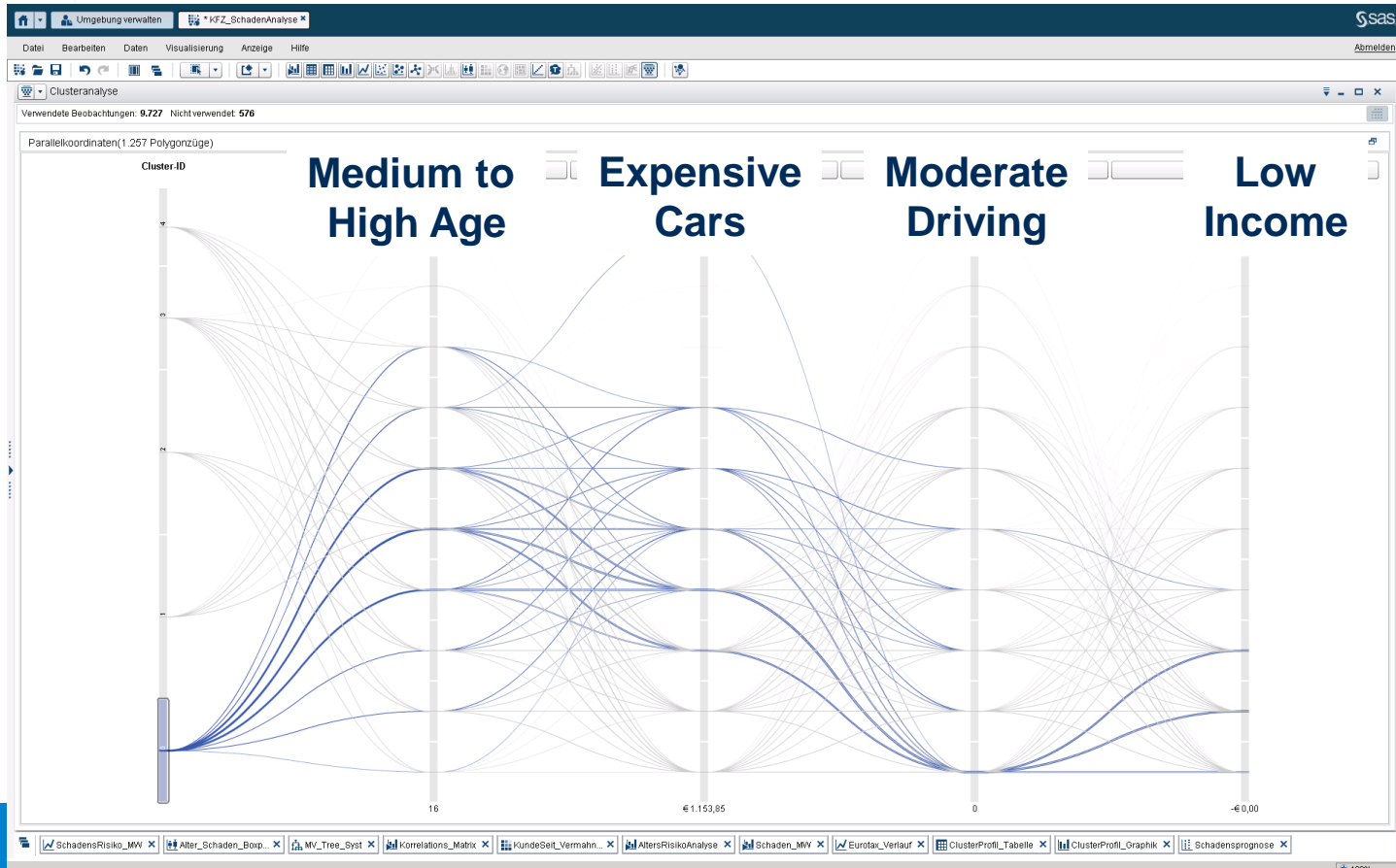
- **Marketers**
 - use analytical CRM to analyze customer behavior data
 - quickly identify reasons why people respond to an offer
 - data about customer behavior on specific campaigns generated more quickly,
 - marketers use the findings and fine-tune offers in the short term

Value Range of the Used Variables

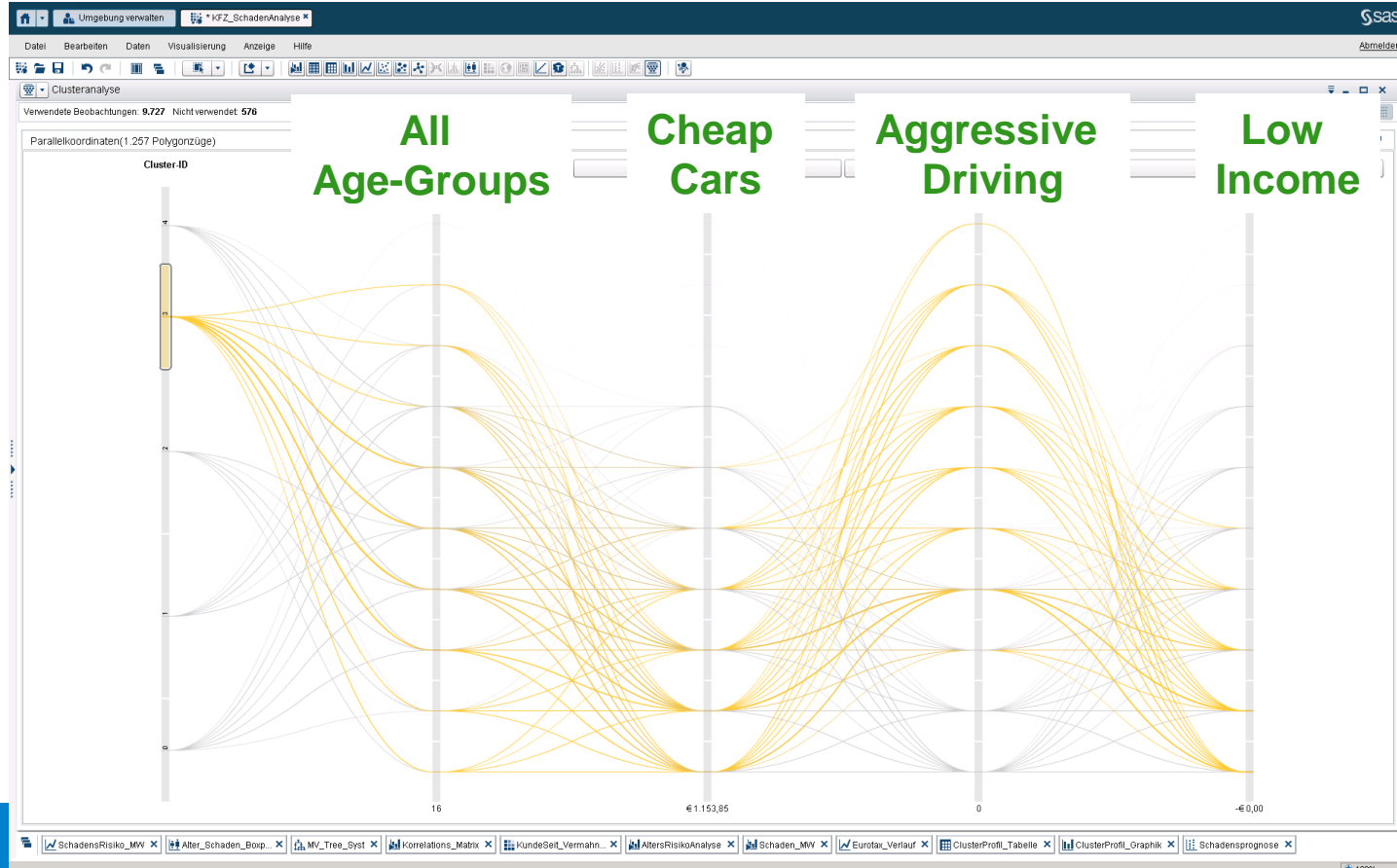
5 Cluster were
detected
automatically



DETAILED RESULTS FOR CLUSTER-ID „0“ (DARK BLUE)



DETAILED RESULTS FOR CLUSTER-ID „3“ (YELLOW)



- Technical Data Quality: Reference Lists, Value Ranges, De-Duplication, ...
- Analytical Data Quality
 - Pattern of Missing Values, number of observations and events, univariate and multivariate outliers
- Business Context
 - Evaluate data from an experts' point of view
 - Identify possible/impossible combinations, time trends
 - Qualify outliers, pattern, ... from a business point of view
 - Detect „Missing Relationships“

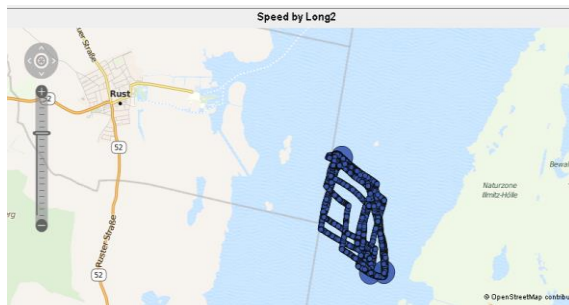


DATA QUALITY PROFILING GPS TRACK POINT DATA

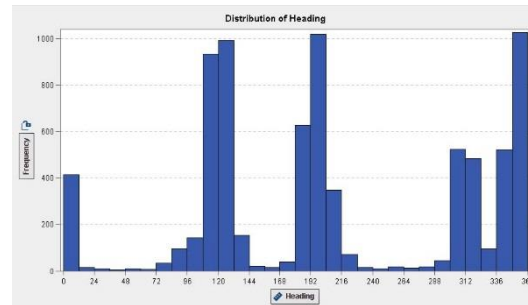
Connectivity of Race Courses



Geo-Location of Race Courses



Compass Heading in [0,360)

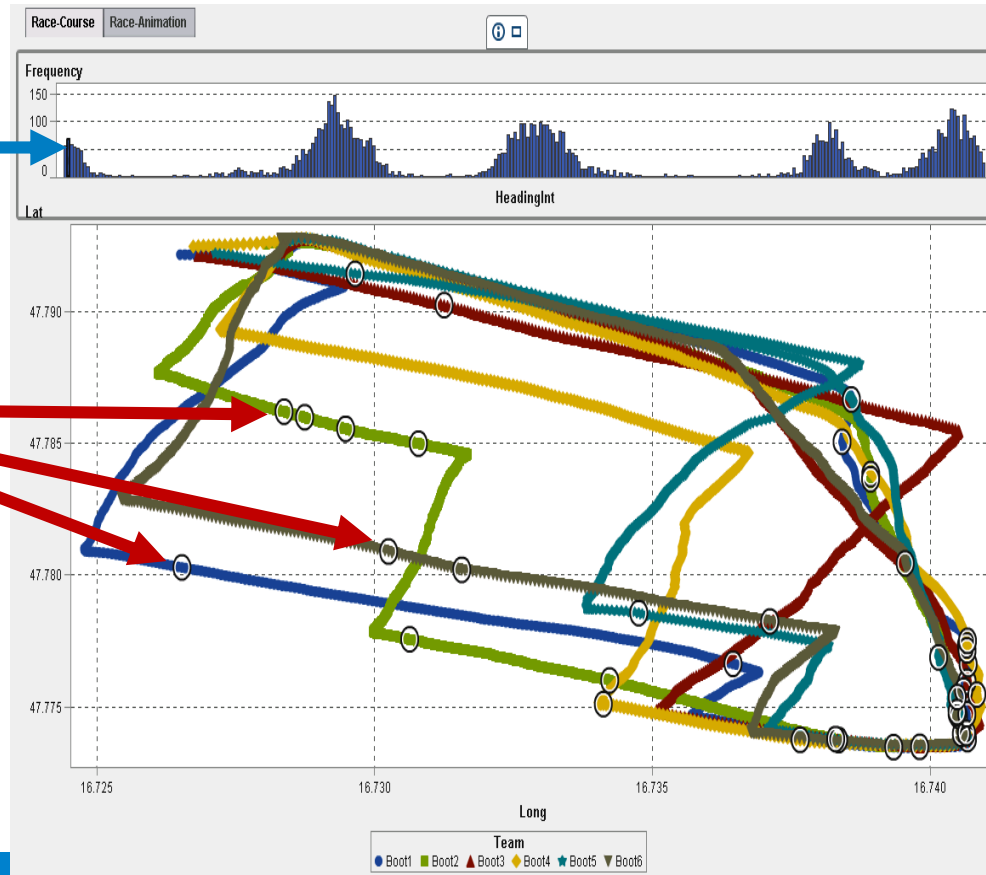


DATA QUALITY DETECTING A HIDDEN PROBLEM

Compass Headings
around 2° are selected

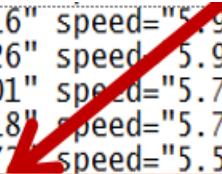
Surprising to see single
track points with heading 2°
also in the upwind section

While sailing upwind to 200°,
boats cannot turn northward for
2 seconds!



DATA QUALITY DRILLING TO THE SOURCE DATA REVEALS THE REASON

- Drilling to the source data reveals the reason:
 - Compass Headings with two zeros (.00) after the decimal point are output as integer values
 - The data integration program that reads this data into a SAS data set did not consider such a situation
 - Integer values are shifted to 2 decimal points. 198.00 → 1.98



```
"2009-05-21T14:04:40+02:00" heading="199.16" speed="5.9"
"2009-05-21T14:04:42+02:00" heading="197.26" speed="5.9"
"2009-05-21T14:04:44+02:00" heading="200.01" speed="5.7"
"2009-05-21T14:04:46+02:00" heading="200.18" speed="5.7"
"2009-05-21T14:04:48+02:00" heading="205.77" speed="5.5"
"2009-05-21T14:04:50+02:00" heading="198" speed="5.405"
"2009-05-21T14:04:52+02:00" heading="205.26" speed="5.6"
"2009-05-21T14:04:54+02:00" heading="195.28" speed="5.5"
"2009-05-21T14:04:56+02:00" heading="198.07" speed="5.5"
"2009-05-21T14:04:58+02:00" heading="204.78" speed="5.5"
```

- Interpreting explanatory analysis as inferential analysis
- Mixing up causality and correlation
- Filtering of the data until the desired result can be found
- Overfitting relationships with quadratic, cubic, or smoothed functions and interpreting only the extreme sections
- Interpreting results (trend line) beyond the data sample

- Cultural change in companies
- Analytic competence centers
- This is a process, not an event

- Procedures/Platforms
 - Collection and handling of the findings
 - Education of the business analysts
 - Identify the key players

CLOSING FREE SAS-SOFTWARE

<http://www.sas.com/software/visual-analytics/demos/full-access.html>

SAS Visual Analytics Full Demo

Get Started

It's your ultimate cheat sheet. Our guide covers an introduction to the technology.

Download the SAS® Visual Analytics Startup Guide  (PDF: 7MB)

Then launch SAS® Visual Analytics to explore data and build reports.*

[Launch SAS® Visual Analytics](#)

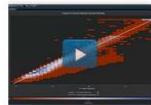
**This demo uses a predefined data set. Reports will not save between sessions. To try SAS Visual Analytics with your own data, please contact a SAS sales representative.*



Bar Charts & Hierarchies



Bubble Plots



Correlations



Forecasting



Geographies



Building Reports



Building Reports with KPIs



Treemaps

SAS® Visual Analytics and Teradata University Network

Free access to world-class analytics and big data for professors and students

http://www.sas.com/de_de/software/university-edition.html

SAS® University Edition

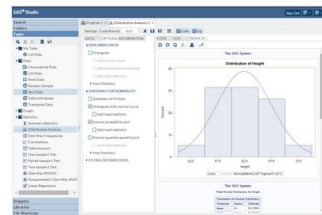
Keine Kosten. Alle Vorteile.

[Download software now](#) 

Kostenlose SAS® Software. Eine interaktive Online Community. Erstklassige Schulungen und Dokumentation. Und alle Analysefunktionen, die Sie benötigen, um erfolgreich Pläne für Ihre Zukunft zu machen.

Leistungsstarke Statistiksoftware. Und zwar kostenlos.

SAS University Edition ist keine minimalistische Version unserer Software. Sie erhalten die aktuellsten Versionen der gleichen erstklassigen Analysesoftware, die auch von mehr als 70.000 Unternehmen, Behörden und Universitäten weltweit eingesetzt wird. Zu unseren Kunden zählen 91 der 100 besten Fortune Global 500® Unternehmen. Das heißt, Sie nutzen jederzeit und überall die aktuellsten statistischen und quantitativen Methoden, direkt auf Ihrem eigenen PC, Mac oder Linux Computer.



CLOSING LINKS AND CONTACT DETAILS

- Gerhard Svolba – SAS Austria – gerhard.svolba@sas.com
- SAS Visual Analytics: http://www.sas.com/de_de/software/business-intelligence/visual-analytics.html
- CMS-Wire: <http://www.cmswire.com/customer-experience/why-ancient-egyptians-would-have-hated-self-service-analytics/>
- Blog
- English: <http://blogs.sas.com/content/subconsciousmusings/2016/03/31/self-service-analytics-sas-not-borrow-ancient-egyptians/>
- German: <http://blogs.sas.com/content/sasdach/2015/11/23/self-service-analytics/>
- Website: http://www.sascommunity.org/wiki/Gerhard_Svolba



Business Analyses with SAS
(My favorite business case studies with SAS Analytics)

Analytics helps you to solve your business questions

The SAS® Analytic Platform is perfectly suited to perform these analyses

8 Case Studies with Business Background, Results and SAS Code

SAS Press (expected 2017)

